

L. D. BENNER
Inside Blind.

No. 210,902.

Patented Dec. 17, 1878.

Fig. 1.

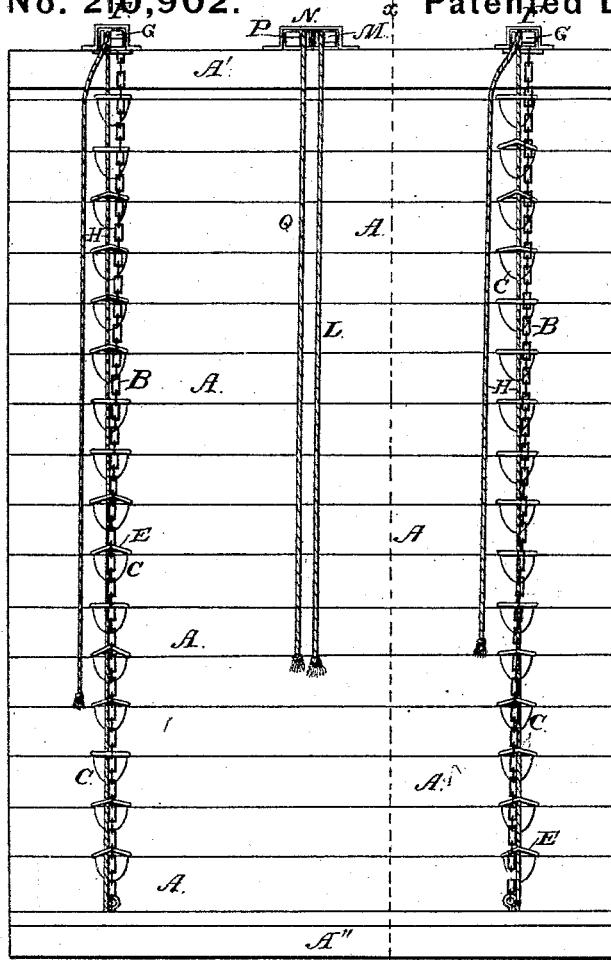


Fig. 2.

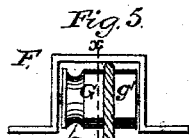
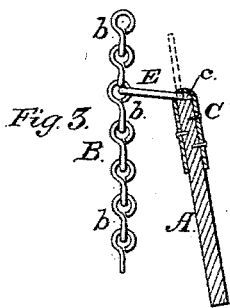
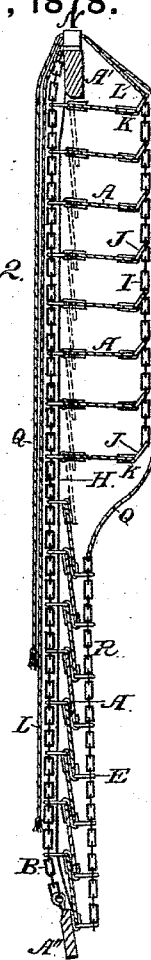
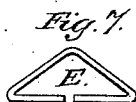
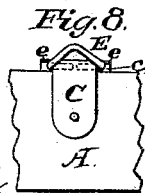
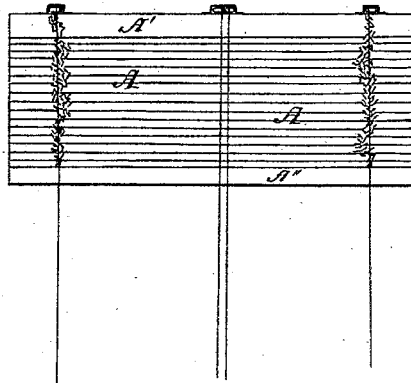


Fig. 4.



WITNESSES:
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UNITED STATES PATENT OFFICE.

LORENZO D. BENNER, OF GALESBURG, ILLINOIS, ASSIGNOR OF ONE-HALF HIS RIGHT TO RISLEY C. HAINES, OF SAME PLACE.

IMPROVEMENT IN INSIDE BLINDS.

Specification forming part of Letters Patent No. 210,902, dated December 17, 1878; application filed October 22, 1878.

To all whom it may concern:

Be it known that I, LORENZO D. BENNER, of Galesburg, in the county of Knox and State of Illinois, have invented certain new and useful Improvements in Slat Curtain Window-Blinds; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 is a front elevation of a curtain-blind embodying my invention. Fig. 2 is a sectional view in the line *xx* in Fig. 1. Fig. 3 is an enlarged sectional view through a part of Fig. 1. Fig. 4 is a front elevation, showing the blinds folded. Fig. 5 is an enlarged elevation of one of the pulleys and frame. Fig. 6 is a sectional view in the line *xx* in Fig. 5. Fig. 7 is a detail view, hereinafter referred to. Fig. 8 is a detail view of a slat and its shouldered loop.

This invention relates to curtain-blinds of that class formed of slats; and the invention consists, first, in the employment, in a slat curtain-blind, of metal chains, in connection with links and shouldered loops, as hereinafter more fully set forth; second, in the combination therewith of pulleys so constructed that the operating-cords may work on one end of the pulley to operate the blinds, and may be moved laterally onto the other end of said pulley to form a lock or fastening for the cord.

Referring to the drawing by letters, the same letter indicating the same part in the different views, letters A represent ordinary slats, formed of any suitable material, the upper one, A', and lower one, A'', of which are preferably heavier material than the others. B B are chains, formed of open metallic links *b*, constructed as shown, or may be constructed, in any other method, of short open links. The chains B are fastened, as shown in the drawings, at their upper ends to the slat A', and at their lower ends to the slat A''.

Letters C represent plates of thin metal, bent to form loops, and are passed over the upper edges of the slats and tacked thereto,

as shown at Fig. 3, so as to leave an eye, *c*, or journal-bearing for the links E, which links are formed, as shown at Fig. 7, of a wire bent into triangular form, and the ends brought together at the center of one side, so that they may be separated and entered in the eye *c* of a loop, C, as shown at Fig. 3 of the drawing, and so as to form a hinge-connection between the two and permit flexing the link E, as shown by dotted lines at same figure.

It will be observed that the plate or loop C is shouldered at *cc*, (see Fig. 8,) so that the link is only allowed limited oscillation, and is kept nearly at right angles to the slat. This is necessary for the easy operation of the slats, especially when drawn up bodily by the outside chains.

Immediately over the end of each wire chain B, and secured to the slat A', is a pulley-frame, F, in which is seated a pulley, G. Each pulley G has a smaller circular end, *g*, and an enlarged end, with two flat sides, *g'*, as shown at Figs. 5 and 6 of the drawing.

H H are cords, one fastened to the slat A'' at the lower end of each chain B, and passed upward through the links E and over the circular part *g* of a pulley, G. The series of slats A being arranged as shown in the drawings, by drawing on one cord H one side of the blind may be raised, and by drawing on both cords the entire blind may be folded and elevated in the ordinary manner, the links E turning on their hinges to facilitate the blinds in folding. When it is desired to secure the blind in an elevated, or partially elevated, position, the cord H may be drawn laterally, and thus thrown on the flat side *g'* of the pulley G, and the pulley, rotating, will bring its larger side upward, and press and hold the cord between the same and the upper side of the pulley-frame F, as shown at Fig. 5 of the drawing, and thus secure it until released by drawing the cord back upon the part *g* of the pulley.

Either link *b* may be opened to remove a slat when desired for repair or any purpose.

The upper half of the series of slats A are connected at their mid-lengths and rear sides by a chain, I, which is constructed same as the chains B, and the chain is connected with the slats A by links J, hinged to loops K, same

as links E to loops C. From the upper end of the chain I a cord, L, extends over a pulley, M, journaled in a frame, N, on the bar A'. The pulley M is constructed the same as the pulleys G, so that the cord L may be secured when desired. By drawing the cord L the upper series of slats, A, may be thrown into horizontal positions, as shown at Fig. 2, the hinged links J facilitating the slats in turning. The frame N contains two pulleys—the one, M, already described, and another similar, P. A cord, Q, passes over the pulley P, and extends down and connects with the upper end of a chain, R, which is connected with the lower series of slats same as the chain I is connected with the upper series, and may be used to throw the lower series of slats into horizontal positions in the same manner that the other does the upper series.

The cords H, L, and Q all depend from their respective pulleys, on the front side of the blind, to within reach of an operator.

Having thus described my invention, what

I claim as new, and desire to secure by Letters Patent, is—

1. In a slat curtain-blind, the metal chains B, constructed of short open links, in combination with the links E and slat A, having the loop C, provided with the shoulders *ee*, substantially as described, and for the purpose set forth.

2. The locking-pulleys G, constructed as described, in combination with chains B, cords H, and slats A A' A'', substantially as described, and for the purpose specified.

3. The locking-pulleys M P, constructed as described, in combination with chains I R, cords L Q, and slats A A', substantially as described, and for the purpose specified.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

LORENZO D. BENNER.

Witnesses:

L. H. CRAM,

P. R. RICHARDS.